ENERGY EFFICIENCY & CLIMATE CHANGE
REPUBLIC OF SERBIA

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Geneva, Jun 2007
Current state of energy consumption

- Low energy consumption per capita (vs EU)
  - 1.9 toe/cap - Up to 3 times less primary energy consumption
  - 3.5 MWh/cap - Up to twice less electricity consumption

- High energy intensity
  - Low energy efficiency at demand side but also low effectiveness of the economy
  - EI 0.9-0.68 toe/1000$ (several times higher than EU-15)

- High losses in energy conversion and transportation (FE to PE ratio ~ 51%)

- Relatively low import dependency (~40%)

- FEC in tertiary sector - non convenient structure (~50% electricity, ~0.12 gas)

FEC 2005: 7.528Mtoe

Industry, 2.21Mtoe 29%

Traffic 1.981Mtoe, 26%

Traffic 3.337Mtoe, 45%

Structure FEC in Tertiary Sector
Total 2005: 3.337Mtoe

- Natural gas 0.413 Mtoe 12%
- Oil derivatives 0.142 Mtoe 4%
- Coal 0.687 Mtoe 21%
- Heat energy 0.423 Mtoe 13%
- B. energy 1.673 Mtoe 50%

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Existing Legal framework

- **Energy Law (2004)**
  - Energy policy:
    - Creating conditions to increase energy efficiency
  - [Institutional Framework]
    - Energy Agency (Regulator)
    - **Energy Efficiency Agency – SEEA**
    - TSMO – Transmission and Market System Operator

- **Structural Changes**
  - Public Energy Companies restructuring

- **New Actors**
  - Individual Power/Heat producers
    - Privileged Power/Heat Producers
  - Eligible customers

- **Law on environmental protection**

- **Law on Construction**

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Existing Strategic framework

- Strategy on economic development of Republic of Serbia (GoS)
- National Environmental Strategy (GoS)
- Strategy on cleaner production (under development)
Energy Sector Development Strategy by 2015 - Priorities

I. Priority of continuous improvement of technological and operating performance of energy sources and facilities

II. Priority of rational use of energy products and increase of energy efficiency (production, distribution and utilization)

- Substitution of power for thermal services in Building sector with gas or DHS
- Increased operating efficiency of thermal sources in industry and municipal services
- Decrease losses of electrical (DS) and thermal energy in DHS, Industry and buildings
- Introduction of new energy efficient electric appliances/equipment/systems
Energy Policy Objectives

<table>
<thead>
<tr>
<th>Rate (%)</th>
<th>Scenario</th>
<th>Dynamic</th>
<th>Moderate</th>
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<tbody>
<tr>
<td>GDP</td>
<td>4.62</td>
<td>3.00</td>
<td></td>
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<tr>
<td>EI</td>
<td>-2.2</td>
<td>-1.1</td>
<td></td>
</tr>
<tr>
<td>EI industry</td>
<td>-2.1</td>
<td>-1.6</td>
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Existing Institutional framework

- Ministry of Mining and Energy
  - Energy policy, legislation
- Ministry of Environmental Protection
  - Environmental protection policy, legislation
- Ministry of Science
  - Scientific development
- Serbian Energy Efficiency Agency
  - Programs, measures, technical regulations for increase of EE
  - Implementation of EE projects
- Regional Energy Efficiency Centers
  - Implement EE projects
- Serbian Industrial Energy Efficiency Network
  - Awareness and training, benchmarking
- Energy Managers in Municipalities and Industry
  - to be introduced
Institutions

- Serbian Energy Efficiency Agency
- Regional EE Centres
  - Belgrade
  - Novi Sad
  - Nis
  - Kragujevac
  - Kraljevo

Industrial EE network

Grant by the Kingdom of Norway

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POS 2007-2012

Module on Energy Efficiency - Barriers

- Low motivation of energy consumers
  - low energy prices and price disparity
  - relatively high investment costs and low life standard
- No incentive instruments
- Low institutional capacities
- Expensive loans and non-attractive loan conditions
- Low financial capability of industry and citizens
- Undeveloped market of EE products and services
- Lack of awareness and information


Geneva, Jun 2007
**POS 2007-2012**

Module on Energy Efficiency – Measures

- **Create favorable regulatory framework**
  - Law on energy efficiency and corresponding secondary regulation (Energy management, EU EE directives etc)
- **Introduction of stimulating financial measures for EE**
  - Energy Efficiency Fund, tax alleviation and other subsidies
  - “Green” public procurement,
  - CDM Projects
- **Strengthen Institutional framework**
  - MoME
  - SEEA
  - REECs
  - SIEN
  - Energy managers
- **Rising awareness, promotion, education**
Technical measures:

- **Industry:**
  - Utilization of waste heat (savings 20%)
  - Replacement of electrical motors (4000MW) with eef1 and eef2 (saving el energy 188 GWh/y)
  - ...

- **Buildings:**
  - Fuel switching (electricity for heating to other energy sources - annual savings 1500 GWh)
  - Replacement of incandescent bulbs (annual savings 701 GWh)
  - Replacement of insulation (annual savings 350 GWh)
  - Replacement of windows (annual savings 740 GWh)
  - ...
Programmes/Projects 2000-2007

- EU (EAR) – grant € 5 M (2002-2006)
  - € 3.75 M for programs
  - Grant for running costs of SEEA
  - Reconstruction of heating system in Clinical center of Serbia
  - EE retrofitting of social services buildings
- Kingdom of Norway (2003-2007)
  - Technical assistance to MoME, SEEA, REECs and SIEN grant around €300,000 annually
- National Energy Efficiency Program - around € 1 mil. annually, state budget, Ministry of science RS
  - Studies
- Energy Efficiency in households € 10 mil, NEW, National Investment Program of Serbia,. In 2007, Ministry of Mining and Energy RS
  - Soft loans to citizens for insulation - 2007
**SEEA Multi Annual Programs**

- Alignment of Serbian Government Policy with energy efficiency trends / no funding
- Energy Efficiency in Buildings / EU (EAR)
- Energy Efficiency in Municipalities / EU (EAR)
- Energy Efficiency in the Industry / EU (EAR)
- Energy Efficiency in Transport / postponed / no funding
- Renewable Energy Sources / EU (EAR)
- Cogeneration / no funding
EU - Special Fund Structure 3.75 M €

Structure by sector

- Buildings 1.65 M € 44%
- Industry 0.9 M € 24%
- RES 0.2 M € 5%
- Municipalities 1 M € 44%

Structure by activity

- Demonstration projects 32%
- Training 32%
- Measurement Equipment 32%
- Information 15%

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Training

Municipal administration
• Energy Management (46)

Industry
• Energy auditing (30 trainees, 10 factories)
• Energy management (80 trainees, 3 factories)
• EMS in food industry (25 trainees, 5 factories)
• Business plans (20 trainees, 10 projects)

RES
• 2 forums (200 participants)
**Demonstration in buildings**

**Investments projects - Grant EU (EAR)**
- **16 public buildings**
- **900,000 € grants (max 70%)**
- School, kindergarten, cultural, health and administrative buildings

**Investment projects - WB IDA loan**
- Phase 1 – 28 buildings + Maternity hospital
- Technical monitoring
- Social monitoring
- Consultancy: BDSP-London/Energoprojekt-Entel

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SEEP – Methodology

ANALYSE

MEASURES

MEASURING

INTERVIEW

‘BEFORE’

WORKS

EVALUATION

PROCESS

‘AFTER’

INTERVIEW

MEASURING

Monthly Total Demand for Combined Zones in Odzaci, Beo

Demand (MWh)
Demonstration in Municipalities

Investment projects
- 11 projects
- € 381,000 grant (up to 75%)
- DHS – 4 projects
- Street lighting – 5 projects
- Water supply – 2 projects

Energy Plans
- 3 towns
- Sombor, Jagodina, Kraljevo
International commitments

Treaty Establishing the Energy Community

- Entered into force 1 July 2006
- Implementation of the Acquisition on energy, competition, Environment and
- Possibly obligation for implementation of EU EE Directives will be added

Ratification of Kyoto Protocol

- UNFCCC - ratified on May 12, 2001
- Kyoto Protocol - Ratification in Parliamentary Procedure status: Non Annex 1 Country
  ➜ Serbia eligible for CDM projects
- I National Communication (with GHG Inventory) – under development
Institutional & Legal

- Establishment and strengthening of DNA
- Creating enabling legal framework for CDM
  - Responsible: MSE, MoME, MIER
  - TA and financial Assistance: UNDP*

Strategic

- Strategy for Implementation of CDM projects
  - Strategy for CDM in energy sector (RES, EE, CHP, Fuel switching) - 2008
    - Responsible: MoME
    - Donation: Norwegian Government

* “Promoting investments for energy efficiency and renewable energy through carbon financing in the Republic of Serbia”
**CDM Projects – Awareness**

**UNDP**
- Assessment of **CDM potential** in Serbia
- Workshop to present and discuss the results of national CDM assessment
- In-depth study of CDM potential in one selected sector
- Support development of selected CDM project ideas up to PIN stage

**Norwegian assistance – CBF for Serbian inst**
- Capacity building of Serbian institutions (MoME, SEEA, REECs, SIEN) – PIN development
- Raising awareness of industrial companies

**Italian assistance**
- Assessment of CDM potential in Serbia
- Capacity building of Serbian institutions
THANK YOU FOR YOUR PATIENCE

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